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# NFPA 1005

# Standard for Professional Qualifications for Marine Fire Fighting for Land-Based Fire Fighters

## 2007 Edition

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# NFPA 1005

## Standard for

# Professional Qualifications for Marine Fire Fighting for Land-Based Fire Fighters

## 2007 Edition

This edition of NFPA 1005, *Standard for Professional Qualifications for Marine Fire Fighting for Land-Based Fire Fighters,* was prepared by the Technical Committee on Fire Fighter Professional Qualifications and released by the Technical Correlating Committee on Professional Qualifications. It was issued by the Standards Council on December 1, 2006, with an effective date of December 20, 2006.

This edition of NFPA 1005 was approved as an American National Standard on December 20, 2006.

## Origin and Development of NFPA 1005

In 1972, the Joint Council of National Fire Service Organizations (JCNFSO) created the National Professional Qualifications Board for the Fire Service (NPQB) to facilitate the development of nationally applicable performance standards for uniformed fire service personnel. On December 14, 1972, the Board established four technical committees to develop those standards using the National Fire Protection Association (NFPA) standards-making system. The initial committees addressed the following career areas: fire fighter, fire officer, fire service instructor, and fire inspector and investigator.

The original concept of the professional qualification standards, as directed by the JCNFSO and the NPQB, was to develop an interrelated set of performance standards specifically for the fire service. The various levels of achievement in the standards were to build upon each other within a strictly defined career ladder. In the late 1980s, revisions of the standards recognized that the documents should stand on their own merit in terms of job performance requirements for a given field. Accordingly, the strict career ladder concept was abandoned, except for the progression from fire fighter to fire officer. The later revisions, therefore, facilitated the use of the documents by other than the uniformed fire services.

The Standards Council, at its July 2000 meeting, received a letter from the Deparment of Defense (DoD), requesting consideration for a new project on shipboard fire fighting for land-based units. The Standards Council placed a notice in *NFPA News* seeking input on interest for such a project. At its January 2001 meeting, the Council approved the establishment of a new Technical Committee under the Professional Qualifications Project to address the request.

The Technical Correlating Committee on Professional Qualifications assigned this new project to the Technical Committee on Fire Fighter Professional Qualifications. That committee in turn named Mike Wieder to chair a task group of individuals with background in shipboard fire fighting.

This first edition of this standard includes the professional qualifications for shipboard fire fighting for land-based units at Level I and Level II. The Technical Committee would like to thank the members of the Ship Board Fire Fighting Task Group who provided their time and expertise in the development of this document. These individuals are Mike Wieder, Chair; Paul Calderwood; Luke Carpenter; Douglas Dillon; Brian Gallant; Jeff Johnson; John Lewis; Henry Morse; William Sullivan; and Don Merkle.

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## NFPA 1005

## Standard for

# Professional Qualifications for Marine Fire Fighting for Land-Based Fire Fighters

## 2007 Edition

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Information on referenced publications can be found in Chapter 2 and Annex C.

## Chapter 1 Administration

**1.1 Scope.** This standard identifies the minimum job performance requirements (JPRs) for land-based fire fighters responsible for fire-fighting operations aboard commercial/military vessels over 50 ft involved in fire that call at North American ports or that are signatory to the International Safety of Life at Sea (SOLAS) Agreement.

**1.2* Purpose.** The purpose of this standard shall be to ensure that land-based fire fighters meeting the requirements of this standard who are responsible for fire-fighting operations aboard commercial/military vessels over 50 ft involved in fire that call at North American ports or that are signatory to the SOLAS agreement are qualified.

**1.3 Units.** In this standard, values for measurement are followed by an equivalent in SI units, but only the first stated value shall be regarded as the requirement. Equivalent values in SI units shall not be considered as the requirement, as these values can be approximate. *(See Table 1.3.)*

**Table 1.3 SI Conversions**

| Quantity | U.S. Unit/Symbol | SI Unit/Symbol | Conversion Factor |
|---|---|---|---|
| Length | inch (in.) | millimeter (mm) | 1 in. = 25.4 mm |
| | foot (ft) | meter (m) | 1 ft = 0.305 m |
| Area | square foot ($ft^2$) | square meter ($m^2$) | 1 $ft^2$ = 0.0929 $m^2$ |

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## Chapter 2 Referenced Publications

**2.1 General.** The documents or portions thereof listed in this chapter are referenced within this standard and shall be considered part of the requirements of this document.

**2.2 NFPA Publications.** National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471.

NFPA 1001, *Standard for Fire Fighter Professional Qualifications,* 2002 edition.

NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program,* 2007 edition.

**2.3 Other Publications.** *Merriam-Webster's Collegiate Dictionary,* 11th edition, Merriam-Webster, Inc., Springfield, MA, 2003.

**2.4 References for Extracts in Mandatory Sections.**

NFPA 1000, *Standard for Fire Service Professional Qualifications Accreditation and Certification Systems,* 2006 edition.

NFPA 1001, *Standard for Fire Fighter Professional Qualifications,* 2002 edition.

NFPA 1002, *Standard for Fire Apparatus Driver/Operator Professional Qualifications,* 2003 edition.

NFPA 1031, *Standard for Professional Qualifications for Fire Inspector and Plan Examiner,* 2003 edition.

NFPA 1081, *Standard for Industrial Fire Brigade Member Professional Qualifications,* 2007 edition.

NFPA 1405, *Guide for Land-Based Fire Fighters Who Respond to Marine Vessel Fires,* 2006 edition.

NFPA 1670, *Standard on Operations and Training for Technical Search and Rescue Incidents,* 2004 edition.

NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments,* 2004 edition.

## Chapter 3 Definitions

**3.1 General.** The definitions contained in this chapter shall apply to the terms used in this standard. Where terms are not defined in this chapter or within another chapter, they shall be defined using their ordinarily accepted meanings within the context in which they are used. *Merriam-Webster's Collegiate Dictionary*, 11th edition, shall be the source for the ordinarily accepted meaning.

**3.2 NFPA Official Definitions.**

**3.2.1* Approved.** Acceptable to the authority having jurisdiction.

**3.2.2* Authority Having Jurisdiction (AHJ).** An organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure.

**3.2.3* Listed.** Equipment, materials, or services included in a list published by an organization that is acceptable to the authority having jurisdiction and concerned with evaluation of products or services, that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services, and whose listing states that either the equipment, material, or service meets appropriate designated standards or has been tested and found suitable for a specified purpose.

**3.2.4 Shall.** Indicates a mandatory requirement.

**3.2.5 Should.** Indicates a recommendation or that which is advised but not required.

**3.2.6 Standard.** A document, the main text of which contains only mandatory provisions using the word "shall" to indicate requirements and which is in a form generally suitable for mandatory reference by another standard or code or for adoption into law. Nonmandatory provisions shall be located in an appendix or annex, footnote, or fine-print note and are not to be considered a part of the requirements of a standard.

### 3.3 General Definitions.

**3.3.1 Action Plan.**

**3.3.1.1 *Incident Action Plan.*** A written management plan developed or approved by the Incident Commander that establishes the overall strategic decisions and assigns tactical objectives for the incident.

**3.3.1.2 *Initial Action Plan.*** A verbal or written management plan developed by the initial Incident Commander to an incident and upon which initial incident control actions are based.

**3.3.2 Bow.** The front end of a boat or vessel. [**1405,** 2006]

**3.3.3 Cold Zone.** See 3.3.5.1.

**3.3.4 Compartment.** A subdivision of space or room in a ship.

**3.3.5 Control Zones.** The areas at an incident that are designated based upon safety and the degree of hazard to the fire fighter.

**3.3.5.1* *Cold Zone.*** The control zone of an incident that contains the command post and other support functions deemed necessary to control the incident.

**3.3.5.2 *Hot Zone.*** The control zone of an incident that includes the fire area or the area immediately surrounding hazardous materials and that extends far enough to prevent adverse effects from fire, products of combustion and/or hazardous materials releases to personnel outside the zone.

**3.3.5.3 *Warm Zone.*** The control zone at an incident that surrounds the hot zone and in which the fire fighter may be exposed to low levels of the products of combustion requiring standard fire fighter personal protective equipment for protection.

**3.3.6 Draft.** (1) The vertical distance between the water surface and the lowest point of a vessel. (2) The depth of water a vessel needs in order to float.

**3.3.7 Fire Department.** An organization providing rescue, fire suppression, and related activities. The term *fire department* shall include any public, governmental, private, industrial, or military organization engaging in this type of activity.

**3.3.8 Fire Fighter.**

**3.3.8.1 *Fire Fighter II.*** A person who has met the requirements of Chapters 1 through 6 of NFPA 1001, *Standard for Fire Fighter Professional Qualifications.* [**1001,** 2002]

**3.3.8.2 *Marine Fire Fighter.***

**3.3.8.2.1 *Marine Fire Fighter I.*** A land-based Fire Fighter II at the first level of progression as defined in Chapter 4, who has demonstrated the knowledge and skills to respond to an incident and operate in the proximity of a vessel or dock area or to provide support functions in the cold and warm zone on board a vessel.

**3.3.8.2.2 *Marine Fire Fighter II.*** A land-based Fire Fighter II at the second level of progression as defined in Chapter 5, who has demonstrated the knowledge and skills to respond to an incident and operate on a vessel while performing defensive and offensive functions inside the warm and hot zone on board a vessel.

**3.3.9 Hot Zone.** See 3.3.5.2.

**3.3.10 Hull.** The main structural frame or body of a vessel below the weather deck.

**3.3.11 Immediately Dangerous to Life and Health (IDLH).** Any condition that would pose an immediate or delayed threat to life, cause irreversible adverse health effects, or interfere with an individual's ability to escape unaided from a hazardous environment. [**1670,** 2004]

**3.3.12 Incident Action Plan.** See 3.3.1.1.

**3.3.13 Initial Action Plan.** See 3.3.1.2.

**3.3.14 Job Performance Requirement (JPR).** A written statement that describes a specific job task, lists the items necessary to complete the task, and defines measurable or observable outcomes and evaluation areas for the specific task. [**1000,** 2006]

**3.3.15 List.** The continuous lean or tilt of a vessel to one side due to an imbalance of weight within the vessel.

**3.3.16 Marine Facility.** Any land-based facility that incorporates buildings, personnel, equipment, docks, moorings, and other features to support the docking, loading, unloading, maintenance, and servicing of marine vessels.

**3.3.17 Marine Fire Fighter I.** See 3.3.8.2.1.

**3.3.18 Marine Fire Fighter II.** See 3.3.8.2.2.

**3.3.19 Marine Incident.** Any fire, explosion, hazardous material, utility, or other type of emergency incident on or in the vicinity of a marine vessel and/or facility to which a fire department can be expected to respond.

**3.3.20 Master.** The captain of a merchant ship. [**1405,** 2006]

**3.3.21 Mate.** A deck officer on a merchant ship ranking below the master. [**1405,** 2006]

**3.3.22 Mooring.** (1) Permanent anchor equipment (attached by a chain to a buoy) to which a vessel can connect a line, wire, or chain, eliminating the need to use the vessel's anchor. (2) The act of securing a vessel. (3) The location where a vessel is berthed.

**3.3.23 Personal Protective Clothing.** The full complement of garments fire fighters are normally required to wear while on an emergency scene including turnout coat, protective trousers, fire-fighting boots, fire-fighting gloves, a protective hood, and a helmet with eye protection. [**1001,** 2002]

**3.3.24 Personal Protective Equipment.** Consists of full personal protective clothing, plus a self-contained breathing apparatus (SCBA) and a personal alert safety system (PASS) device.

**3.3.25 Port.** General area of a shore establishment having facilities for the landing, loading/unloading, and maintenance of vessels; harbor with piers.

**3.3.26 Port Side.** The left-hand side of a ship when facing forward. [**1405,** 2006]

**3.3.27 Port State Control.** The government authority having ultimate legal jurisdiction over a port or jurisdictional waterways.

**3.3.28 Procedure.** The series of actions, conducted in an approved manner and sequence, designed to achieve an intended outcome. [**1081,** 2007]

**3.3.29 Requisite Knowledge.** Fundamental knowledge one must have in order to perform a specific task. [**1031,** 2003]

**3.3.30 Requisite Skills.** The essential skills one must have in order to perform a specific task. [**1031,** 2003]

**3.3.31 Secondary Line.** A back-up hose line and crew that accompanies the primary attack line and crew into the hot zone at an incident.

**3.3.32 Ship's Agent.** A person or firm who transacts all business in a port on behalf of ship owners or charterers.

**3.3.33 Ship's Engineer.** Officer on a mechanically propelled vessel charged with maintenance and efficient operation of main engines and, usually, all powered machinery on board.

**3.3.34 Starboard Side.** The right-hand side of a ship as one faces forward. [**1405,** 2006]

**3.3.35 Stern.** The after end of boat or vessel. [**1405,** 2006]

**3.3.36 Structural Fire Fighting.** The activities of rescue, fire suppression, and property conservation in buildings, enclosed structures, aircraft interiors, vehicles, vessels, aircraft, or like properties that are involved in a fire or emergency situation. [**1710,** 2004]

**3.3.37 Task.** A specific job behavior or activity. [**1002,** 2003]

**3.3.38 Team.** Two or more individuals who have been assigned a common task and are in proximity to and in direct communications with each other, coordinate their activities as a work group, and support the safety of one another.

**3.3.39 Trim.** (1) The longitudinal angle of a vessel. (2) The relation of the vessel's floating attitude to the water considered from front to back. (3) The difference between fore and aft draft readings. (4) To cause a vessel to assume a desirable position in the water by arrangement of ballast, cargo, or passengers.

**3.3.40 Vessel.** The general term for all craft capable of floating on water and larger than a rowboat.

**3.3.41 Warm Zone.** See 3.3.5.3.

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## Chapter 4 General Requirements

### 4.1 Job Performance Requirements.

**4.1.1** The JPRs shall be accomplished in accordance with the requirements of the authority having jurisdiction (AHJ) and NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program.*

**4.1.2*** The JPRs shall not be required to be mastered in the order in which they appear. The AHJ shall establish instructional priority and the training program content to prepare individuals to meet the JPRs of this standard.

**4.1.3*** Performance of each requirement of this standard shall be evaluated by individuals approved by the AHJ.

**4.1.4*** The land-based marine fire fighters at all levels of progression shall remain current with marine fire protection technology, fire suppression practices, and applicable standards by attending workshops and seminars, undergoing certification testing, and accessing professional publications.

### 4.2 Marine Fire Fighter Qualification Requirements.

**4.2.1*** To meet the requirements for Marine Fire Fighter I, the Fire Fighter II shall meet the general knowledge and skill requirements and the JPRs of Chapter 5.

**4.2.2** To meet the requirements for Marine Fire Fighter II, the Marine Fire Fighter I shall meet the general knowledge and skill requirements and the JPRs of Chapter 6.

**4.3 Terminology.** Wherever the terms *rules, regulations, procedures, supplies, apparatus,* or *equipment* are used in this standard, it shall be understood that the terms refer to the mandates of the AHJ.

## Chapter 5 Marine Fire Fighter I

**5.1 General Requirements.** To meet the requirements for Marine Fire Fighter I, the Fire Fighter II shall meet the general knowledge requirements in 5.1.1, the general skill requirements in 5.1.2, and the JPRs in Sections 5.2 through 5.5 of this standard and the requirements defined in Chapter 6, Fire Fighter II, of NFPA 1001, *Standard for Fire Fighter Professional Qualifications.*

**5.1.1 General Knowledge Requirements.** The Marine Fire Fighter I shall have general knowledge of the following:

(1) Marine vessel types and potential products to be carried on those vessels
(2) Marine facility types and potential vessels and products that can be present in those facilities

**5.1.2 General Skill Requirements.** This duty shall not involve any requirements for the Marine Fire Fighter I.

**5.2 Access.** This duty involves making safe access to the scene of an incident and evaluating and securing the scene on or around an involved vessel so that it can be safely boarded, if necessary, according to the JPRs of 5.2.1 through 5.2.3.

**5.2.1*** Locate and access the scene of an incident, given an incident, preincident plans, a facility map, navigational charts, a specified response vehicle, or other aids or combination thereof, used by the AHJ, so that the scene of the incident is identified and potential delays in or hazards to the response are identified and avoided.

**(A) Requisite Knowledge.** Hazards associated with marine facilities and vessels; vehicle operation regulations within the marine facility; appropriate access points for marine facilities; marine facility layout.

**(B) Requisite Skills.** Reading and using maps, plans, and navigational charts.

**5.2.2** Board a vessel, given a vessel; personal protective equipment; a ladder, gangway, or other access device; and an assignment, so that the hazards are assessed, the access device is positioned and secured according to procedures, and the personnel and equipment necessary to perform the assignment are transferred to the vessel without falling or being dropped.

**(A) Requisite Knowledge.** Effect of vessel movement due to tide, wakes, currents, or other factors on laddering or accessing a vessel; criteria of a safe foundation for ladder placement on a marine vessel; reliable structural components on the vessel for top placement of a ground ladder; positioning of ladders and gangways; effects of water depth and draft.

**(B) Requisite Skills.** Climbing techniques for gangways; the ability to carry, raise, and climb ground ladders in a marine environment.

**5.2.3** Access a specified location on a vessel, given a vessel, a plan of the vessel, and an assignment, so that hazards are assessed, the location is identified and accessed, and the personnel and equipment necessary to perform the assignment are transferred from the vessel boarding location to the designated location without falling or being dropped.

**(A) Requisite Knowledge.** Vessel construction terminology; marine terminology (bow, stern, port, starboard, and so forth); hazards associated with various locations on a vessel.

**(B) Requisite Skills.** Negotiating vessel ladders, decks, and corridors; operating vessel doors and hatches.

**5.3 Response.** This duty involves the placement of apparatus and equipment at an incident, establishing the water supply for fire-fighting operations, rescuing personnel onboard the vessel, establishing effective incident communications, protecting exposures and cargo, controlling utilities, and assessing and controlling vessel stability and movement, according to the JPRs of 5.3.1 through 5.3.6.

**5.3.1*** Position the apparatus at a marine incident, given an incident in a specified location, an assignment, an apparatus, preincident plans, a facility map, standard operating procedures, or other resources used by the AHJ, so that hazards are avoided, the apparatus is spotted for the given assignment according to procedures, and access for later arriving vehicles is not unnecessarily blocked.

**(A) Requisite Knowledge.** Water supply sources for marine incidents; hazards within the port or facility; designated vehicle access routes within the port or facility; vehicle length, height, and weight limits; safe vehicle placement relative to the vessel and mooring lines; ability to read preincident plans and maps of marine facilities; strategic and tactical positioning for various types of fire apparatus.

**(B) Requisite Skills.** Reading and using maps and plans on marine facilities; recognizing hazards that are present in a marine environment.

**5.3.2** Establish connections for the water supply at an incident, given a static or pressurized water supply source; a pumping-type fire apparatus; appropriate hose, adapters, international shore connections, and other fittings; agency procedures; and an assignment, so that an uninterrupted supply of water is established and all hoses are connected and positioned according to procedures.

**(A) Requisite Knowledge.** Location and capacity of hydrants at marine facilities; availability and capabilities of alternative water supply sources such as tanker/tenders, fire boats, and fire pumps; safe drafting locations relative to the location of the involved vessel; effects of tidal movements on drafting operations; agency procedures.

**(B) Requisite Skills.** Connecting hoses to fire boats and vessel inlets; placing hard intake hoses over dock edges or other drafting locations; stretching supply hoses to the vessel.

**5.3.3** Remove a victim from a vessel as a member of a team, given a vessel, a team, an assignment, a victim, a ladder or gangway, a litter, or other devices specified by the AHJ, so that the equipment is used in its intended manner and the victim is removed without further injury.

**(A) Requisite Knowledge.** Likely location of crew members, passengers, shipyard workers, and contractors on a vessel or in a marine facility; positioning for ladders and gangways to be used for rescue operations; effects of vessel movements on ladder, aerial device, and gangway placement.

**(B) Requisite Skills.** Moving conscious and unconscious victims within and off vessels; moving victims on ladders and gangways; moving and positioning ladders and gangways for rescue within and off vessels.

**5.3.4** Protect an exposure at a marine fire incident as a member of a team, given an incident; a team; an exposure; a water supply source; fire apparatus, fire hose, nozzles, and equipment; and an assignment, so that the apparatus and equipment are positioned and deployed according to procedures and the exposure is protected.

**(A) Requisite Knowledge.** Effects of conducted, convected, and radiated heat on marine facility and vessel exposures; effects of weather on fire behavior and marine exposure protection; exposure hazards presented by various structures and equipment at marine facilities and on vessels; positioning around marine facilities and vessels.

**(B) Requisite Skills.** Connecting hoses and apparatus to marine facility water supply sources; deploying hoses and nozzles for exposure protection within a marine facility or vessel.

**5.3.5** Collect and report vessel stability information, given a vessel, an incident, measuring devices, standard operating procedures, and an assignment, so that any current or potential hazards to stability are recognized and reported according to procedures.

**(A) Requisite Knowledge.** Effect of tide, wakes/waves, currents, fire-fighting agents, vessel movement, or combinations thereof on vessel stability; procedures for reporting the information; vessel draft marking systems.

**(B) Requisite Skills.** Visualizing the position of a vessel and estimating any deviation from the normal position; using measuring devices and communications equipment.

**5.3.6*** Control vessel movement, given a vessel, mooring equipment, standard operating procedures, and an assignment, so that the vessel is prevented from moving from the desired location.

**(A) Requisite Knowledge.** Effect of tide, wakes/waves, currents, movement of nearby vessels, weather, or combinations thereof on vessel movement; methods for securing a vessel to a land-based mooring or another vessel; roles and responsibilities for personnel who secure the vessel.

**(B) Requisite Skills.** Operating mooring lines and equipment.

**5.4 Communications.** This duty involves using marine facility and vessel communications equipment to receive and relay verbal information at an incident, according to the JPRs of 5.4.1 through 5.4.4.

**5.4.1** Transmit and receive messages via marine facility and vessel communications equipment, given marine facility and vessel communications equipment and standard operating procedures, so that the information is accurate, complete, clear, and relayed within the time established by the AHJ.

**(A) Requisite Knowledge.** Marine communications terminology and procedures; proper marine radio frequencies to be used; types and capabilities of vessel communications systems; methods for overcoming language barriers.

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**(B) Requisite Skills.** Operating marine facility and vessel communications systems; operating marine radios.

**5.4.2** Locate a marine facility or vessel representative, given a marine facility or vessel and an assignment, so that a line of communication is established between the fire department and the facility or vessel representatives.

**(A) Requisite Knowledge.** Locations on a vessel where the ship's master, mate, engineer, or ship's agent can be located; marine frequencies monitored by the vessel master; locations where facility representatives are normally located; methods for contacting representatives after normal working hours.

**(B) Requisite Skills.** Operating marine facility and vessel communications equipment; boarding the vessel; negotiating or traveling through the facility or vessel.

**5.4.3** Retrieve a vessel fire control plan and other specified documents from a cold zone on the vessel, given a vessel, an assignment, a fire control plan and other documents, and any necessary equipment, so that the fire control plan and documents are located and brought to the Incident Commander within the time specified by the AHJ.

**(A) Requisite Knowledge**. Location(s) on the vessel where the fire control plan and other documents, such as dangerous cargo manifests, trim and stability booklets, cargo-loading manuals, and crew and passenger lists are stored; primary and alternate routes to reach the location(s) where the fire control plan and other documents are stored; understanding of response personnel utilization of the fire control plan; location of the command post.

**(B) Requisite Skills.** Boarding and negotiating or traveling through the vessel; recognition of the fire control plan and other types of documents.

**5.4.4** Transmit and receive messages to vessel personnel and other agencies responding to an incident, given an incident, a list of the other agencies responding to the incident, communications equipment, and standard operating procedures, so that the information is accurate, complete, clear, and relayed within the time established by the AHJ.

**(A) Requisite Knowledge.** Marine communications terminology and procedures; proper marine radio frequencies to be used; land-based frequencies used in mutual aid situations; other agencies that respond to marine incidents.

**(B) Requisite Skills.** Operating vessel and mobile communications systems, marine radios, and fire department communications equipment.

**5.5 Command.** This duty involves deploying an incident management system at an incident, as well as establishing site control and information exchange procedures, according to the JPRs of 5.5.1 through 5.5.4.

**5.5.1*** Establish command at an incident, given an incident and an incident management system, so that all major parties involved in the incident and their responsibilities are identified and an initial command post is established.

**(A) Requisite Knowledge.** Working knowledge of the incident management system used by the AHJ; parties to be included in the unified command structure at an incident; unified command procedures; roles and responsibilities of the fire department, ship's master, U.S. Coast Guard or other marine agency for that jurisdiction (e.g., port state control), and facility representatives.

**(B) Requisite Skills.** Locating facility and vessel representatives; conducting unified command meetings, briefings, and operations.

**5.5.2** Develop and monitor an initial action plan for an incident, given an incident, standard operating procedures, and fire department communications equipment, so that an accurate size-up of the incident is performed, the nature and location of the incident are accurately reported, hazards are identified, required resources are identified and ordered, assignments to other responders are made, incident progress is monitored, and the information is accurately transferred to the next Incident Commander.

**(A) Requisite Knowledge.** Radio procedures used by the AHJ; resource requirements for various types of incidents; basic marine fire-fighting and emergency incident tactics; hazards associated with marine incidents; incident management system used by the AHJ; size-up procedures; transfer-of-command procedures.

**(B) Requisite Skills.** Operating marine radio and other communications equipment; using a tactical command worksheet; formulating and transmitting a size-up report.

**5.5.3** Control access to a vessel, given a vessel, an incident, an accountability system, an incident management system, and response personnel, so that all emergency responders boarding the vessel are noted and accounted for, unauthorized personnel are prevented from boarding the vessel, and emergency personnel accountability reports (PARs) can be completed.

**(A) Requisite Knowledge.** The incident management and accountability systems used by the AHJ; knowledge of personnel who are authorized to operate at a marine incident.

**(B) Requisite Skills.** Differentiating between authorized and unauthorized personnel attempting to board the vessel; using accountability tactical worksheets.

**5.5.4** Evacuate a vessel or exposure, given an occupied vessel or exposure, an incident, an accountability system, an incident management system, and response personnel, so that all nonessential personnel are removed from the hazard area to an area of refuge.

**(A) Requisite Knowledge.** Vessel and facility evacuation procedures; likely locations of passengers and crew members on the vessel; incident management and accountability procedures used by the AHJ.

**(B) Requisite Skills.** Operating onboard communications equipment; identifying safe routes of egress and locations of safe refuge on a vessel.

## Chapter 6 Marine Fire Fighter II

**6.1 General Requirements.** To meet the requirements for Marine Fire Fighter II, the Marine Fire Fighter I shall meet the general knowledge requirements in 5.1.1, the general skill requirements in 5.1.2, and the JPRs in Sections 5.2 through 5.5.

**6.1.1 General Knowledge Requirements.** The Marine Fire Fighter II shall have general knowledge of the following:

(1) Stability characteristics of various types of vessels
(2) Relationship of stability to trim, list, hull deflection, and draft

**6.1.2 General Skill Requirements. (Reserved)**

**6.2 Access.** This duty involves making safe access to the scene of an incident and evaluating and securing the scene on or around an involved vessel so that it can be safely boarded, if necessary, according to the JPRs of 6.2.1.

**6.2.1** Access a fire compartment operating as a member of a team, given a vessel, a team, an assignment, an incident, personal protective equipment, forcible entry tools, and a guide rope or hose line, so that team integrity is maintained, doors and hatches are opened, tools are used, barriers are removed, and the opening is made ready for entry.

**(A) Requisite Knowledge.** Construction and normal operation of vessel doors and hatches; forcible entry techniques for vessel doors, hatches, and compartments; safety procedures for securing vessel doors and hatches to prevent them from closing behind fire fighters; desired entry methods for various tactical operations, including ventilation, observation, dewatering, and agent application.

**(B) Requisite Skills.** Transporting and operating forcible entry tools; operating, forcing, and securing vessel doors and hatches; breaching decks and walls.

**6.3 Response.** This duty involves the control and extinguishment of fires onboard vessels, including fire attack, ventilation, reconnaissance operations, dewatering operations, and rescue of vessel occupants, according to the JPRs of 6.3.1 through 6.3.14.

**6.3.1** Control marine facility utilities, given a vessel or marine facility, an incident, standard operating procedures, tools, and an assignment, so that the utilities are controlled and command is notified.

**(A) Requisite Knowledge.** Properties, principles, and safety concerns for electric, gas, sanitary, and water systems at marine facilities; utility disconnect methods and safety precautions specific to marine facilities.

**(B) Requisite Skills.** Identifying and operating utility controls found at marine facilities and on vessels; assessing the marine facility for utility hazards.

**6.3.2*** Control cargo transfer to and from a vessel, given a vessel, cargo, equipment, standard operating procedures, and an assignment, so that the cargo transfer status is identified, hazards to fire-fighting operations are recognized and mitigated, and the information is relayed to the Incident Commander.

**(A) Requisite Knowledge.** Hazards presented by various types of cargo, cargo-handling equipment; procedures for securing and transferring various types of cargo; vessel and facility personnel roles and responsibilities.

**(B) Requisite Skills.** Using various types of cargo-handling equipment.

**6.3.3** Advance hose lines for boundary protection and other defensive fire operations onboard a vessel operating as a member of a team, given a vessel, a team, an incident, an assignment, personal protective equipment, sufficient hose and a nozzle, standard operating procedures, and other equipment necessary to access the intended deployment location, so that team integrity is maintained, the hose line is deployed for advancement and operation, effective agent application practices are used, techniques are appropriate for the type of fire being fought, hazards are recognized and avoided, and the fire is brought under control or the boundary is sufficiently cooled.

**(A) Requisite Knowledge.** Principles of fire streams; types, design, operation, nozzle pressure effects, and flow capabilities of nozzles; precautions to be followed when advancing hose lines to a fire on a vessel; observable results of a fire stream that has been applied; dangerous vessel conditions created by fire; principles of exposure protection on a vessel; physical states of matter that fuels can be found on a vessel; types and application of attack lines used on vessels; effects of fire streams on various material/fuel configurations; safe locations for operating fire streams on a vessel; recognition of the need to control fire movement aboard a vessel; characteristics and operation of vessel fixed water supply and fire protection systems.

**(B) Requisite Skills.** Preventing water hammers when shutting down nozzles and valves; opening, closing, and adjusting flow and stream pattern on spray nozzles; advancing charged and uncharged 1½ in. (38 mm) diameter or larger hose lines up and down vessel ladders and stairs, through corridors, and across decks; applying the fire stream to the marine fire area; opening and securing watertight doors and hatches and other doors and hatches onboard a vessel.

**6.3.4** Ventilate smoke from a vessel operating as part of a team, given a vessel, a team, an incident, an assignment, personal protective equipment, ventilation tools, equipment, ladders, standard operating procedures, and onboard ventilation systems, so that all equipment is positioned for ventilation, team integrity is maintained, a specified ventilation opening is created and left unobstructed, tools and onboard ventilation equipment are used as designed, all possible ventilation barriers are removed, products of combustion are removed from the vessel, and the team retreats to a safe location once the ventilation opening is made.

**(A) Requisite Knowledge.** Construction principles of a vessel that affect ventilation operations; principles, advantages, limitations, and effects of horizontal, vertical, natural, and forced ventilation; safety considerations when venting a vessel; operation of onboard ventilation systems; signs, causes, effects, and prevention of backdrafts; products of combustion commonly found in vessel fires; methods of heat transfer and principles of thermal layering on vessels; effects of vessel construction on fire behavior and heat transfer.

**(B) Requisite Skills.** Transporting and deploying ventilation equipment on a vessel; opening marine doors and hatches; breaching vessel structural components, operating onboard ventilation systems.

**6.3.5*** Operate onboard vessel fixed fire suppression systems as a member of a team, given a vessel, a team, an incident, a fixed fire suppression system, an assignment, personal protective equipment, standard operating procedures, and communications equipment, so that the system is activated or shut down when directed by the Incident Commander.

**(A) Requisite Knowledge.** Types of fixed suppression systems found on vessels; appropriate times to activate fixed suppression systems on vessels; hazards associated with operating fixed suppression systems and agents.

**(B) Requisite Skills.** Operating fire suppression system controls; operating communications equipment located at the fire suppression system control room.

**6.3.6*** Assess fire conditions onboard a vessel while operating as a member of a team, given a vessel, a team, an assignment, an incident, personal protective equipment, a hose or safety

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line, and communications equipment, so that team integrity is maintained and the current size, intensity, location, rate and direction of spread, and other pertinent fire information are relayed to the Incident Commander within the time frame and format established by the AHJ.

**(A) Requisite Knowledge.** Fire behavior onboard vessels; safety procedures for operating in or near fire compartments on vessels; vessel construction and arrangement.

**(B) Requisite Skills.** Negotiating vessel ladders, stairs, corridors, and decks; operating in high heat and vision-obscured areas; accurately estimating compartment and fire size and percent of involvement.

**6.3.7** Confirm the location and identity of exposures, hazards, or hazardous materials from vessel documents or personnel as a member of a team given a vessel, a team, an assignment, crew members, an incident, a dangerous cargo manifest (DCM), shipping papers, stowage plan, and appropriate reference materials, so that the exposures, hazards, or hazardous materials are identified and the information is conveyed to the Incident Commander.

**(A) Requisite Knowledge.** Terminology and symbols used in fire control plans; use for and difference between vessel arrangement diagrams and fire control plans; purpose of watch station bills and crew/passenger lists and how they can be used by response personnel in an emergency; location, use, and limitations of a DCM and cargo stowage plan; location where these documents are likely to be found and who will utilize them in an emergency; implications of changes in vessel draft, trim, list, and hull deflection; container numbering systems; placarding and labeling systems; ship layout and construction.

**(B) Requisite Skills.** Reading and using vessel documents, labels, and placards; identifying various types of containers.

**6.3.8** Interpret marine facility and vessel documents, given a vessel fire control plan, passenger and cargo manifests, crew information or other types of documents, communications equipment, and appropriate reference materials, so that the information is interpreted and conveyed to the Incident Commander.

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**(A) Requisite Knowledge.** Terminology and symbols used in fire control plans; use for and difference between vessel arrangement diagrams and fire control plans; purpose of watch station bills and crew/passenger lists and how they can be used by response personnel in an emergency; location, use, and limitations of a DCM and cargo stowage plan; use of a cargo-loading manual and vessel stability book; location where these documents are likely to be found and who will utilize them in an emergency; implications of changes in vessel draft, trim, list, and hull deflection.

**(B) Requisite Skills.** Locating specific items on fire control plans, such as fire control lockers, agent storage rooms, and fire main connections; using the fire control plan to develop the rescue plan; reading information on a DCM, including hazardous material shipping name, package type, weight, location, hazard class, and UN number.

**6.3.9** Remove water from, or transfer water within, a vessel while operating as a member of a team, given a team, a vessel containing water, an assignment, dewatering equipment, and personal protective equipment, so that hazards to the vessel and personnel are identified, equipment is used in the manner for which it was designed, the water is moved or removed, and vessel stability is maintained.

**(A) Requisite Knowledge.** Methods for removing or transferring water; safety precautions to be taken when working in water; hazards associated with water collecting in various portions of a vessel; hazards associated with water removal or transfer in a vessel.

**(B) Requisite Skills.** Deploying and operating dewatering equipment.

**6.3.10** Attack a fire within a vessel operating as a member of a team, given a vessel, a team, an incident, an attack line, a secondary line, personal protective equipment, ladders or other required equipment, and an assignment, so that team integrity is maintained, the attack line is deployed for advancement, ladders are placed when needed, access is gained to the fire compartment, effective water application practices are used, the fire is approached, attack techniques facilitate suppression given the level of the fire, hidden fires are located and extinguished, hazards are recognized and managed, and the fire is extinguished.

**(A) Requisite Knowledge.** Principles of fire streams; types, design, operation, nozzle pressure effects, and flow capabilities of nozzles; precautions to be followed when advancing hose lines to a fire on a vessel; observable results of a fire stream that has been applied; dangerous vessel conditions created by fire; principles of exposure protection on a vessel; types of fuels found on a vessel; types and application of attack lines used on vessels; effects of fire streams on various material/fuel configurations; safe locations for operating fire streams on a vessel; recognition of the need to control fire movement aboard a vessel.

**(B) Requisite Skills.** Preventing water hammers when shutting down nozzles and valves; opening, closing, and adjusting flow and stream pattern on spray nozzles; advancing charged and uncharged 1½ in. (38 mm) diameter or larger hose lines up and down vessel ladders and stairs, through corridors, and across decks; applying the fire stream to the marine fire area; attacking fires on, above, and below the main deck level; advancing multiple hose lines for fire attack, secondary lines in coordination, or both.

**6.3.11*** Conduct a search and rescue operation for a missing or downed fire fighter on a vessel operating as a member of a team, given a vessel, a team, an assignment, an incident, standard operating procedures, a vessel fire plan or other documents, a downed or missing fire fighter, personal protective equipment, a flashlight, a portable radio, forcible entry tools, a hose or safety line, and other equipment available to the AHJ, so that ladders are placed when needed; all equipment is used as designed; areas where the fire fighter could be located are searched; the fire fighter is located, supported, and removed; team integrity is maintained; and the team members' respiratory protection is not compromised.

**(A) Requisite Knowledge.** Psychological effects of operating in obscured-vision conditions; methods to determine if the area is tenable; rapid intervention search techniques and strategies for locating and removing downed or missing fire fighters.

**(B) Requisite Skills.** Using forcible entry tools and ladders during search and rescue operations; using self-contained breathing apparatus (SCBA) while negotiating restricted passages; setting up and using ladders for various rescue situations; rescuing a fire fighter with functioning respiratory protection; rescuing a fire fighter without functioning respiratory protection; accessing remote or enclosed compartments; advancing charged and uncharged 1½ in. (38 mm) diameter or larger hose lines up and down vessel ladders and stairs, through corridors, and across decks; removing fire fighters using carries and drags; operating, forcing, and securing vessel doors and hatches; breaching decks and walls.

**6.3.12*** Conduct a search and rescue operation for a missing victim on a vessel operating as a member of a team, given a vessel, a team, an assignment, an incident, a vessel fire plan or other documents, a missing victim, personal protective equipment, a flashlight, forcible entry tools, and other equipment available to the AHJ, so that ladders are placed when needed, all equipment is used as designed, areas where the victim could be located are searched, the victim is located and removed, team integrity is maintained, and the team members' respiratory protection is not compromised.

**(A) Requisite Knowledge.** Psychological effects of operating in obscured-vision conditions; methods to determine if the area is tenable; primary and secondary search techniques on vessels; victim removal methods (including various drags and carries); likely locations of passengers, crew members, shipyard workers, and contractors.

**(B) Requisite Skills.** Using forcible entry tools and ladders during search and rescue operations; using SCBA while negotiating restricted passages; setting up and using ladders for various rescue situations; rescuing victims without functioning respiratory protection; accessing remote or enclosed compartments; advancing charged and uncharged 1½ in. (38 mm) diameter or larger hose lines up and down vessel ladders and stairs, through corridors, and across decks; removing victims using carries and drags; operating, forcing, and securing vessel doors and hatches; breaching decks and walls.

**6.3.13** Determine the need for and deploy special extinguishing agents needed to attack a fire on a vessel, given a vessel, an incident, an assignment, a selection of special extinguishing agents and their use instructions, special agent application equipment, agent quantity calculation devices, and other information allowed by the AHJ, so that the need is identified and communicated to the Incident Commander, the agent is selected for the fire being attacked, the equipment needed to apply the agent is requested and assembled, and a sufficient quantity of agent is applied to extinguish the fire and prevent reignition.

**(A) Requisite Knowledge.** Classes of fire and the appropriate extinguishing agents for each class and fuel; effects of various extinguishing agents on cargo and life safety; delivery methods for various special extinguishing agents, including onboard systems; sources of bulk special extinguishing agents.

**(B) Requisite Skills.** Reading cargo manifests; reading technical information on extinguishing agents; calculating extinguishing rates and quantities for various special agents; deploying and operating special extinguishing agent equipment.

**6.3.14** Develop a preincident survey for a vessel, given a vessel, measuring and documentation equipment, and a policy for conducting a preincident survey by the AHJ, so that a detailed preincident survey is developed in accordance with the standard operating procedures of the AHJ.

**(A) Requisite Knowledge.** Hazards associated with marine fire incidents; important strategic and tactical elements of marine fire incidents; necessary elements of a preincident survey for a marine incident.

**(B) Requisite Skills.** Using measuring and photography equipment; drawing diagrams and plans of vessels and marine facilities; using preincident survey forms or software.

**6.4 Communications.** This duty involves no requirements for the Marine Fire Fighter II.

**6.5 Command.** This duty involves no requirements for the Marine Fire Fighter II.

## Annex A Explanatory Material

*Annex A is not a part of the requirements of this NFPA document but is included for informational purposes only. This annex contains explanatory material, numbered to correspond with the applicable text paragraphs.*

**A.1.2** The intent of this standard is to provide direction on the necessary qualifications for structural fire fighters who might be expected to participate in land-based fire and rescue operations on marine vessels that are located at a dock or close to land.

**A.3.2.1 Approved.** The National Fire Protection Association does not approve, inspect, or certify any installations, procedures, equipment, or materials; nor does it approve or evaluate testing laboratories. In determining the acceptability of installations, procedures, equipment, or materials, the authority having jurisdiction may base acceptance on compliance with NFPA or other appropriate standards. In the absence of such standards, said authority may require evidence of proper installation, procedure, or use. The authority having jurisdiction may also refer to the listings or labeling practices of an organization that is concerned with product evaluations and is thus in a position to determine compliance with appropriate standards for the current production of listed items.

**A.3.2.2 Authority Having Jurisdiction (AHJ).** The phrase "authority having jurisdiction," or its acronym AHJ, is used in NFPA documents in a broad manner, since jurisdictions and approval agencies vary, as do their responsibilities. Where public safety is primary, the authority having jurisdiction may be a federal, state, local, or other regional department or individual such as a fire chief; fire marshal; chief of a fire prevention bureau, labor department, or health department; building official; electrical inspector; or others having statutory authority. For insurance purposes, an insurance inspection department, rating bureau, or other insurance company representative may be the authority having jurisdiction. In many circumstances, the property owner or his or her designated agent assumes the role of the authority having jurisdiction; at government installations, the commanding officer or departmental official may be the authority having jurisdiction.

**A.3.2.3 Listed.** The means for identifying listed equipment may vary for each organization concerned with product evaluation; some organizations do not recognize equipment as listed unless it is also labeled. The authority having jurisdiction should utilize the system employed by the listing organization to identify a listed product.

**A.3.3.5.1 Cold Zone.** Personnel operating in the cold zone are not exposed to the products of combustion, hazardous materials, or other inherent hazards created by the incident.

**A.4.1.2** See Annex B for additional information regarding the use of JPRs for training and evaluation.

**A.4.1.3** Where practical, evaluators should be individuals who were not directly involved as instructors for the requirement being evaluated.

**A.4.1.4** Continuing education or training is necessary to ensure that land-based marine fire fighters remain current and update their knowledge and skills in the evolving field of marine fire fighting. Nationally recognized certification is one means of demonstrating proficiency in current practices.

**A.4.2.1** Many jurisdictions choose to deliver training in modules that allow personnel to be trained in certain fire fighter tasks and to perform limited duties under direct supervision prior to meeting the complete requirements for Marine Fire Fighter I certification.

**A.5.2.1** The Marine Fire Fighter I does not necessarily have to be the person driving the apparatus to achieve this objective. The Marine Fire Fighter I might simply provide direction to the apparatus driver/operator that leads to the placement of the apparatus at the desired location.

**A.5.3.1** The Marine Fire Fighter I does not necessarily have to be the person driving the apparatus to achieve this objective. The Marine Fire Fighter I might simply provide direction to the apparatus driver/operator that leads to the placement of the apparatus at the desired location.

**A.5.3.6** Local standard operating procedures identifying who might operate mooring equipment and lines should be established and followed. The standard operating procedures might differentiate these responsibilities based on the size of the vessel being moored. Fire fighters might be expected to operate mooring lines and equipment for small vessels, while the mooring of large vessels might be left up to qualified dockworkers and vessel crew members.

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**A.5.5.1** Any one of a number of incident management systems might be used for this purpose. Effective October 1, 2004, federal policy requires that all incidents that include the participation of federal agencies, or for which state and local agencies seek federal reimbursement, must use the National Incident Management System (NIMS).

**A.6.3.2** Local standard operating procedures identifying who might operate cargo-handling equipment should be established and followed. The standard operating procedures might choose to differentiate these responsibilities based on the size of the vessel. Fire fighters might be allowed to operate cargo-handling equipment for small vessels, while cargo-handling on large vessels might be left up to longshoremen and vessel crew members.

**A.6.3.5** If this activity requires the Marine Fire Fighter II to enter an IDLH atmosphere, it should be performed by a team. It is imperative that the operation of fixed fire suppression systems be coordinated with the operation and advancement of crews for manual fire-fighting operations; otherwise, operating the system might pose additional challenges or hazards to fire fighters located in the area in which the system is operating.

**A.6.3.6** The intent of this JPR is for the Marine Fire Fighter II to be able to perform reconnaissance of forward incident locations and accurately size up the incident and relay information to superiors in the incident management system.

**A.6.3.11** The intent of this JPR is to prepare the Marine Fire Fighter II to serve as a member of a rapid intervention team (RIT) for incidents that occur on a vessel.

**A.6.3.12** Paragraphs 6.3.11 and 6.3.12 are very similar. The primary difference is that, in 6.3.11, the Marine Fire Fighter II is rescuing another fire fighter who might be wearing SCBA. In 6.3.12, the Marine Fire Fighter II is locating and removing ship's occupants.

## Annex B Explanation of the Standards and Concepts of JPRs

*This annex is not a part of the requirements of this NFPA document but is included for informational purposes only.*

**B.1 Explanation of the Standards and Concepts of Job Performance Requirements (JPRs).** The primary benefit of establishing national professional qualification standards is to provide the public and private sectors with a framework of the job requirements for the fire service. Other benefits include enhancement of the profession, individual as well as organizational growth and development, and standardization of practices.

NFPA professional qualification standards identify the minimum JPRs for specific fire service positions. The standards can be used for implementing training design and evaluation; certifying, measuring and critiquing on-the-job performance; defining hiring practices; and setting organizational policies, procedures, and goals. (Other applications are encouraged.)

Professional qualification standards for a specific job are organized by major areas of responsibility defined as duties. For example, the fire fighter's duties might include fire suppression, rescue, and water supply; and the public fire educator's duties might include education, planning and development, and administration. Duties are major functional areas of responsibility within a job.

The professional qualification standards are written as JPRs. JPRs describe the performance required for a specific job. JPRs are grouped according to the duties of a job. The complete list of JPRs for each duty defines what an individual must be able to do in order to successfully perform that duty. Together, the duties and their JPRs define the job parameters; that is, the professional qualification standard as a whole is a job description.

**B.2 Breaking Down the Components of a JPR.** The JPR is the assembly of three critical components. *(See Table B.2.)* These components are as follows:

(1) Task that is to be performed
(2) Tools, equipment, or materials that must be provided to successfully complete the task
(3) Evaluation parameters and/or performance outcomes

**B.2.1 The Task to Be Performed.** The first component is a concise statement of what the person is supposed to do.

**B.2.2 Tools, Equipment, or Materials that Must Be Provided to Successfully Complete the Task.** This component ensures that all individuals completing the task are given the same minimal tools, equipment, or materials when being evaluated. By listing these items, the performer and evaluator know what must be provided in order to complete the task.

**Table B.2 Example of a JPR**

| | |
|---|---|
| (1) Task | (1) Ventilate a pitched roof |
| (2) Tools, equipment, or materials | (2) Given an ax, a pike pole, an extension ladder, and a roof ladder |
| (3) Evaluation parameters and performance outcomes | (3) So that a 4 ft × 4 ft hole is created; all ventilation barriers are removed; ladders are properly positioned for ventilation; ventilation holes are correctly placed; and smoke, heat, and combustion by-products are released from the structure |

**B.2.3 Evaluation Parameters and/or Performance Outcomes.** This component defines how well one must perform each task for both the performer and evaluator. The JPR guides performance outcomes. This portion of the JPR promotes consistency in evaluation by reducing the variables used to gauge performance.

In addition to these three components, the JPR contains requisite knowledge and skills. Just as the term *requisite* suggests, they are the necessary knowledge and skills one must have prior to being able to perform the task. Requisite knowledge and skills are the foundation for task performance.

Once the components and requisites are put together, the JPR might read as follows.

**B.2.3.1 Example 1.** The Fire Fighter I shall ventilate a pitched roof, given an ax, a pike pole, an extension ladder, and a roof ladder, so that a 4 ft × 4 ft hole is created, all ventilation barriers are removed, ladders are properly positioned for ventilation, and ventilation holes are correctly placed.

**(A) Requisite Knowledge.** Pitched roof construction, safety considerations with roof ventilation, dangers associated with incorrect ventilation, knowledge of ventilation tools, effects of ventilation on fire growth, smoke movement in structures, signs of backdraft, knowledge of vertical and forced ventilation.

**(B) Requisite Skills.** Remove roof covering; correctly initiate roof cuts; use the pike pole to clear ventilation barriers; use ax correctly for sounding, cutting, and stripping; position ladders; climb and position self on ladder.

**B.2.3.2 Example 2.** The fire investigator shall interpret burn patterns, given standard equipment and tools and some structural/content remains, so that each individual pattern is evaluated with respect to the burning characteristics of the material involved.

**(A) Requisite Knowledge.** Knowledge of fire development and the interrelationship of heat release rate, form, and ignitibility of materials.

**(B) Requisite Skill.** Interpret the effects of burning characteristics on different types of materials.

**B.3 Examples of Potential Uses.**

**B.3.1 Certification.** JPRs can be used to establish the evaluation criteria for certification at a specific job level. When used for certification, evaluation must be based on the successful completion of JPRs.

First, the evaluator would verify the attainment of requisite knowledge and skills prior to JPRs evaluation. Verification might be through documentation review or testing.

Next, the candidate would then be evaluated on completing the JPRs. The candidate would perform the task and be evaluated based on the evaluation parameters, the performance outcomes, or both. This performance-based evaluation can be either practical (for psychomotor skills such as "ventilate a roof") or written (for cognitive skills such as "interpret burn patterns").

Note that psychomotor skills are those physical skills that can be demonstrated or observed. Cognitive skills (or mental skills) cannot be observed but are evaluated on how one completes the task (process oriented) or on the task outcome (product oriented).

Using Example 1, a practical performance-based evaluation would measure the ability to "ventilate a pitched roof." The candidate passes this particular evaluation if the standard was met, that is, if a 4 ft × 4 ft hole was created, all ventilation barriers were removed, ladders were correctly positioned for ventilation, ventilation holes were correctly placed, and smoke, heat, and combustion by-products were released from the structure.

For Example 2, when evaluating the task "interpret burn patterns," the candidate might be given a written assessment in the form of a scenario, photographs, and drawings and then be asked to respond to specific written questions related to the JPR's evaluation parameters.

Remember, when evaluating performance, candidates must be given the tools, equipment, or materials listed in the JPR before they can be correctly evaluated: for example, an ax, a pike pole, an extension ladder, and a roof ladder.

**B.3.2 Curriculum Development/Training Design and Evaluation.** The statements contained in this document that refer to job performance were designed and written as JPRs. Although a resemblance to instructional objectives might be present, these statements should not be used in a teaching situation until after they have been modified for instructional use.

JPRs state the behaviors required to perform a specific skill(s) on the job, as opposed to a learning situation. These statements should be converted into instructional objectives with behaviors, conditions, and standards that can be measured within the teaching/learning environment. A JPR that requires a fire fighter to "ventilate a pitched roof" should be converted into a measurable instructional objective for use when teaching the skill. *[See Figure B.3.2(a).]*

Using Example 1, a terminal instructional objective might read as follows:

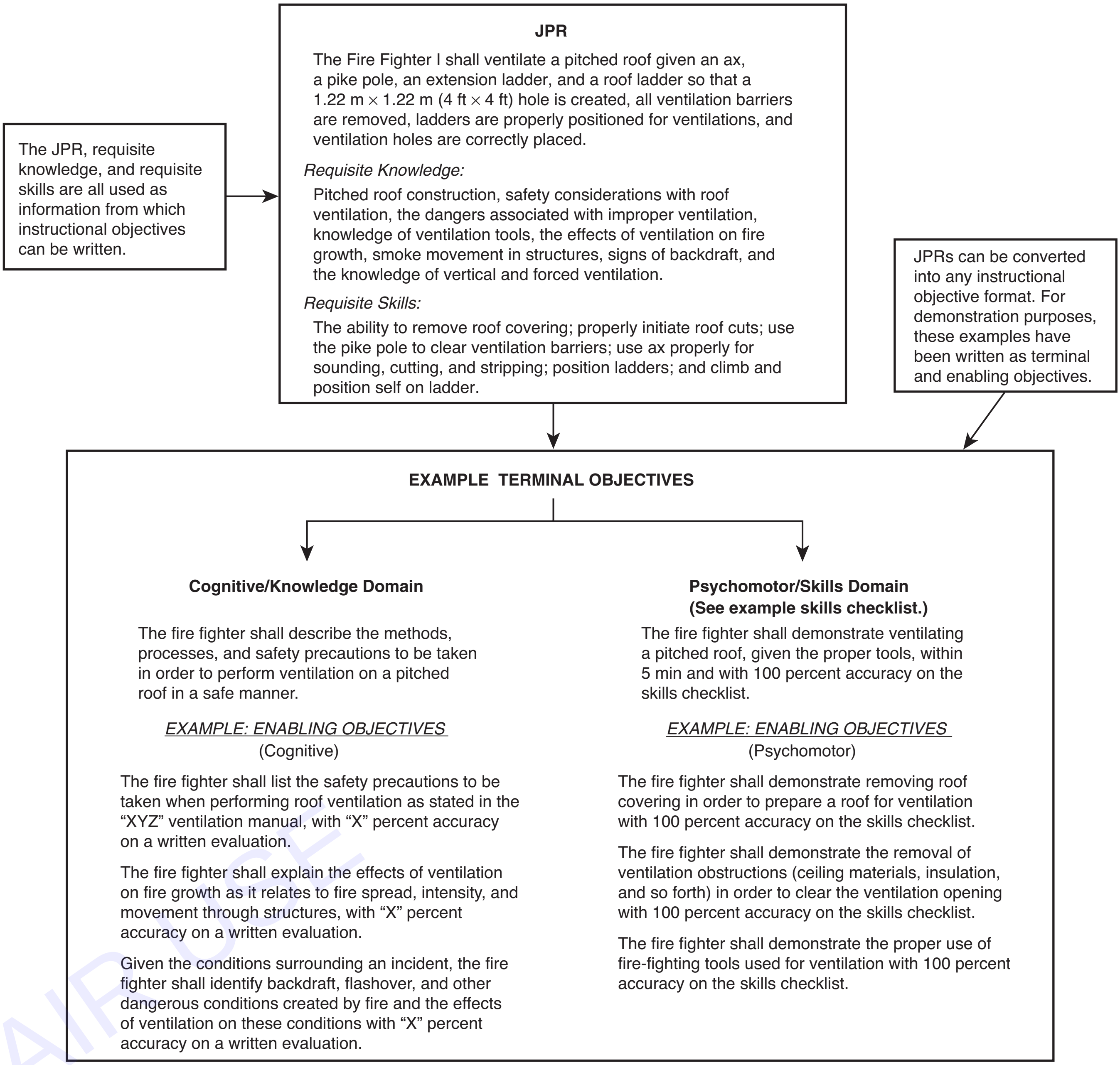
The candidate will ventilate a pitched roof, given a simulated roof, an ax, a pike pole, an extension ladder, and a roof ladder, so that 100 percent accuracy is attained on a skills checklist. (At a minimum, the skills checklist should include each of the measurement criteria from the JPR.)

Figure B.3.2(b) is a sample checklist for use in evaluating this objective.

While the differences between job performance requirements and instructional objectives are subtle in appearance, the purpose of each statement differs greatly. JPRs state what is necessary to perform the job in the "real world." Instructional objectives, however, are used to identify what students must do at the end of a training session and are stated in behavioral terms that are measurable in the training environment.

By converting JPRs into instructional objectives, instructors will be able to clarify performance expectations and avoid confusion related to using statements designed for purposes other

FAIR USE



The JPR, requisite knowledge, and requisite skills are all used as information from which instructional objectives can be written.

**JPR**

The Fire Fighter I shall ventilate a pitched roof given an ax, a pike pole, an extension ladder, and a roof ladder so that a 1.22 m × 1.22 m (4 ft × 4 ft) hole is created, all ventilation barriers are removed, ladders are properly positioned for ventilations, and ventilation holes are correctly placed.

*Requisite Knowledge:*

Pitched roof construction, safety considerations with roof ventilation, the dangers associated with improper ventilation, knowledge of ventilation tools, the effects of ventilation on fire growth, smoke movement in structures, signs of backdraft, and the knowledge of vertical and forced ventilation.

*Requisite Skills:*

The ability to remove roof covering; properly initiate roof cuts; use the pike pole to clear ventilation barriers; use ax properly for sounding, cutting, and stripping; position ladders; and climb and position self on ladder.

JPRs can be converted into any instructional objective format. For demonstration purposes, these examples have been written as terminal and enabling objectives.

**EXAMPLE TERMINAL OBJECTIVES**

**Cognitive/Knowledge Domain**

The fire fighter shall describe the methods, processes, and safety precautions to be taken in order to perform ventilation on a pitched roof in a safe manner.

*EXAMPLE: ENABLING OBJECTIVES*
(Cognitive)

The fire fighter shall list the safety precautions to be taken when performing roof ventilation as stated in the “XYZ” ventilation manual, with “X” percent accuracy on a written evaluation.

The fire fighter shall explain the effects of ventilation on fire growth as it relates to fire spread, intensity, and movement through structures, with “X” percent accuracy on a written evaluation.

Given the conditions surrounding an incident, the fire fighter shall identify backdraft, flashover, and other dangerous conditions created by fire and the effects of ventilation on these conditions with “X” percent accuracy on a written evaluation.

**Psychomotor/Skills Domain**
**(See example skills checklist.)**

The fire fighter shall demonstrate ventilating a pitched roof, given the proper tools, within 5 min and with 100 percent accuracy on the skills checklist.

*EXAMPLE: ENABLING OBJECTIVES*
(Psychomotor)

The fire fighter shall demonstrate removing roof covering in order to prepare a roof for ventilation with 100 percent accuracy on the skills checklist.

The fire fighter shall demonstrate the removal of ventilation obstructions (ceiling materials, insulation, and so forth) in order to clear the ventilation opening with 100 percent accuracy on the skills checklist.

The fire fighter shall demonstrate the proper use of fire-fighting tools used for ventilation with 100 percent accuracy on the skills checklist.

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**FIGURE B.3.2(a) Converting JPRs into Instructional Objectives.**

than teaching. Additionally, instructors will be able to add local/state/regional elements of performance into the standards as intended by the developers.

Requisite skills and knowledge should be converted into enabling objectives. These objectives help to define the course content. The course content should include each of the requisite knowledge and skills. Using Figure B.3.2(b), the enabling objectives are pitched roof construction, safety considerations with roof ventilation, removal of roof covering, proper roof cuts, and so on. These objectives ensure that the course content supports the terminal objective.

Note that it is assumed that the reader is familiar with curriculum development or training design and evaluation.

**B.4 Other Uses.** While the professional qualifications standards are used principally to guide the development of training and certification programs, there are a number of other potential uses for these documents. Because they are written in JPR terms, they lend themselves well to any area of the profession where a level of performance or expertise must be determined. Such areas might include the following:

(1) *Employee Evaluation/Performance Critiquing.* JPRs can be used as a guide by both the supervisor and the employee during an evaluation. The JPRs for a specific job define tasks that are essential to perform on the job, as well as the evaluation criteria to measure when those tasks are completed.

**Objective:**
The fire fighter shall demonstrate ventilating a pitched roof, given the proper tools, within 5 min and with 100 percent accuracy on the skills checklist.

1. A 1.22 m × 1.22 m (4 ft × 4 ft) hole was created. ☐ Yes ☐ No
2. All ventilation barriers were removed. ☐ Yes ☐ No
3. Ladders were properly positioned. ☐ Yes ☐ No
4. Ventilation holes were correctly placed (directly over fire, at highest point, etc.) ☐ Yes ☐ No
5. Task completed within 5 min ☐ Yes ☐ No
(Time to complete task: __________)

**FIGURE B.3.2(b) Sample Skills Checklist.**

(2) *Establishing Hiring Criteria.* Professional qualifications standards can be used in a number of ways to further the establishment of hiring criteria. The authority having jurisdiction could simply require certification at a specific job level, for example, Fire Fighter I. The JPRs could also be used as the basis for pre-employment screening by establishing essential minimal tasks and the related evaluation criteria. An added benefit is that individuals interested in employment can work toward the minimal hiring criteria at local colleges.

(3) *Employee Development.* The professional qualifications standards can be useful to both the employee and the employer in developing a plan for the individual's growth within the organization. The JPRs and the associated requisite skills and knowledge can be used as a guide to determine additional training and education required for the employee to master the job or profession.

(4) *Succession Planning.* Succession planning, or career pathing, addresses the efficient placement of people into jobs in response to current needs and anticipated future needs. A career development path can be established for targeted individuals to prepare them for growth within the organization. The JPRs and requisite knowledge and skills could then be used to develop an educational path to aid in the individual's advancement within the organization or profession.

(5) *Establishing Organizational Policies, Procedures, and Goals.* The JPRs can be incorporated into organizational policies, procedures, and goals where employee performance is addressed.

FAIR USE

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## Annex C Informational References (Reserved)

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FAIR USE

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# *Sequence of Events Leading to Issuance of an NFPA Committee Document*

## Step 1: Call for Proposals

- Proposed new Document or new edition of an existing Document is entered into one of two yearly revision cycles, and a Call for Proposals is published.

## Step 2: Report on Proposals (ROP)

- Committee meets to act on Proposals, to develop its own Proposals, and to prepare its Report.
- Committee votes by written ballot on Proposals. If two-thirds approve, Report goes forward. Lacking two-thirds approval, Report returns to Committee.
- Report on Proposals (ROP) is published for public review and comment.

## Step 3: Report on Comments (ROC)

- Committee meets to act on Public Comments to develop its own Comments, and to prepare its report.
- Committee votes by written ballot on Comments. If two-thirds approve, Report goes forward. Lacking two-thirds approval, Report returns to Committee.
- Report on Comments (ROC) is published for public review.

## Step 4: Technical Report Session

- "*Notices of intent to make a motion*" are filed, are reviewed, and valid motions are certified for presentation at the Technical Report Session. ("Consent Documents" that have no certified motions bypass the Technical Report Session and proceed to the Standards Council for issuance.)
- NFPA membership meets each June at the Annual Meeting Technical Report Session and acts on Technical Committee Reports (ROP and ROC) for Documents with "certified amending motions."
- Committee(s) vote on any amendments to Report approved at NFPA Annual Membership Meeting.

FAIR USE

## Step 5: Standards Council Issuance

- Notification of intent to file an appeal to the Standards Council on Association action must be filed within 20 days of the NFPA Annual Membership Meeting.
- Standards Council decides, based on all evidence, whether or not to issue Document or to take other action, including hearing any appeals.

# *Committee Membership Classifications*

The following classifications apply to Technical Committee members and represent their principal interest in the activity of the committee.

| | |
|---|---|
| M | *Manufacturer:* A representative of a maker or marketer of a product, assembly, or system, or portion thereof, that is affected by the standard. |
| U | *User:* A representative of an entity that is subject to the provisions of the standard or that voluntarily uses the standard. |
| I/M | *Installer/Maintainer:* A representative of an entity that is in the business of installing or maintaining a product, assembly, or system affected by the standard. |
| L | *Labor:* A labor representative or employee concerned with safety in the workplace. |
| R/T | *Applied Research/Testing Laboratory:* A representative of an independent testing laboratory or independent applied research organization that promulgates and/or enforces standards. |
| E | *Enforcing Authority:* A representative of an agency or an organization that promulgates and/or enforces standards. |
| I | *Insurance:* A representative of an insurance company, broker, agent, bureau, or inspection agency. |
| C | *Consumer:* A person who is, or represents, the ultimate purchaser of a product, system, or service affected by the standard, but who is not included in the *User* classification. |
| SE | *Special Expert:* A person not representing any of the previous classifications, but who has a special expertise in the scope of the standard or portion thereof. |

NOTES;

1. "Standard" connotes code, standard, recommended practice, or guide.
2. A representative includes an employee.
3. While these classifications will be used by the Standards Council to achieve a balance for Technical Committees, the Standards Council may determine that new classifications of members or unique interests need representation in order to foster the best possible committee deliberations on any project. In this connection, the Standards Council may make appointments as it deems appropriate in the public interest, such as the classification of "Utilities" in the National Electrical Code Committee.
4. Representatives of subsidiaries of any group are generally considered to have the same classification as the parent organization.

# NFPA Technical Committee Document Proposal Form

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**Date** April 1, 200X **Name** John J. Doe **Tel. No.** 716-555-1234

**Company** Air Canada Pilot's Association

**Street Address** 123 Summer Street Lane **City** Lewiston **State** NY **Zip** 14092

**Please indicate organization represented (if any)**

**1. (a) NFPA Document Title** National Fuel Gas Code **NFPA No. & Year** 54, 200X Edition

**(b) Section/Paragraph** 3.3

**2. Proposal Recommends (check one):** ☐ new text ☒ revised text ☐ deleted text

**3. Proposal (include proposed new or revised wording, or identification of wording to be deleted):** [Note: Proposed text should be in legislative format; i.e., use underscore to denote wording to be inserted (inserted wording) and strike-through to denote wording to be deleted (~~deleted wording~~).]

Revise definition of effective ground-fault current path to read:

3.3.78 Effective Ground-Fault Current Path. An intentionally constructed, permanent, low impedance electrically conductive path designed and intended to carry ~~underground~~ electric fault current ~~conditions~~ from the point of a ground fault on a wiring system to the electrical supply source.

**4. Statement of Problem and Substantiation for Proposal:** (Note: State the problem that would be resolved by your recommendation; give the specific reason for your Proposal, including copies of tests, research papers, fire experience, etc. If more than 200 words, it may be abstracted for publication.)

Change uses proper electrical terms.

SAMPLE

FAIR USE

**5. Copyright Assignment**

(a) ☐ **I am the author of the text or other material (such as illustrations, graphs) proposed in this Proposal.**

(b) ☒ **Some or all of the text or other material proposed in this Proposal was not authored by me. Its source is as follows** (please identify which material and provide complete information on its source)**:**

ABC Co.

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**Company** ____________

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**1. (a) NFPA Document Title** ____________ **NFPA No. & Year** ____________

**(b) Section/Paragraph** ____________

**2. Proposal Recommends (check one):** ☐ new text ☐ revised text ☐ deleted text

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